3 Methodology

The following section of the report discusses the methodology employed for the trail use survey. This is important not only insofar as interpreting the results is concerned, but also to assist in the design of future surveys. Aspects of the methodology that are considered in this section include the respondent universe, the sampling procedures, administering the survey instrument, weaknesses associated with the survey instrument, expected versus actual response rates, and controlling for bias.

Nature of the Survey

The survey was developed in consultation with staff from the National Park Service and Professor Gary Machlis of the University of Idaho, the Park Service's visiting chief social scientist. The survey was submitted to, and approved by, the Office of Management and Budget. Minor modifications to the instrument were made based upon feedback received during the training sessions for interview staff. In addition, the survey instrument was reviewed and approved by the University of Southern California's Institutional Review Board (IRB) to ensure that it met Federal standards for ethical research involving human subjects.

The survey sought to capture information on the following five broad categories (see ***Appendix 1*** for the instrument):

- User demographics;
- Visitation rates and recreational activity patterns;
- Attitudes toward the Santa Monica Mountains;
- User group interaction patterns; and
- Access to the SMMNRA.

User demographics

Demographic characteristics of park users were collected, including age, race/ethnicity, sex, household composition, and presence and number of children. Socioeconomic status items were designed to capture educational attainment, housing tenure, and household income. A series of items on country of origin, duration of residence in the US among non-native born respondents, and language spoken at home were structured to understand the extent to which immigrants, recent arrivals or long-term, used the SMMNRA trails.

Visitation and recreational activity pattern items

The survey instrument included items on how often respondents visited the SMMNRA, how long they spent or were planning to spend during the visit on which the survey was taken, season and temporal patterns of use, and the extent to which the trail site where they were surveyed was their regular destination within the SMMNRA. Reasons why visitors came to the SMMNRA were also queried. Respondents were also

asked about the number of members in their party or group (whether human or animal), and whether the groups were comprised of family members, friends, clubs or other organized groups. Two forms of park use were considered – active recreation including: walking, jogging, exercising dogs, riding horses; and passive recreation – bird watching, communing with nature, painting, picnicking, sunbathing, photography, research and the like. Usage patterns were also compared to those for respondents' local or neighborhood parks.

Attitudes toward the Santa Monica Mountains

Part of the purpose of the survey was to gain a better understanding of perceptions about the SMMNRA and attitudes toward conservation and recreational uses of the Santa Monica Mountains. The survey therefore included items about where visitors obtained their knowledge of the mountains' flora and fauna, and their opinion as to why the Santa Monicas should be protected – for example, for ecocentric reasons (such as habitat protection) or anthropocentric reasons (such as recreation).

User group interaction patterns

An important component of trail use planning is gaining an understanding of how various trail users interact. Several items on the survey instrument addressed trail user interactions and sources of conflict. Questions asked respondents to indicate whether other users impacted their trail experience, and whether impacts were positive or negative. In addition, the range of problems that other users created (for example, damage to plants, animal waste and litter) were taken into account.

Access to the SMMNRA

The survey included questions regarding the time that trail users spent traveling to the SMMNRA. For residents of Southern California, additional questions were directed towards the nearest intersection to their place of residence. All respondents were asked for their residential zip code. In addition, items addressed the mode of arrival of park users, including: automobile, motorcycle, bicycle, public transport, and walking. Attention was given to physically challenged users. Questions on the survey also specifically addressed barriers to access that respondents had encountered in the SMMNRA.

Respondent Universe and Response Rate

The survey was targeted at visitors 18 years of age or older visiting the 23 trailheads at destination parks, and 10 secondary neighborhood entrances that were identified by the National Park Service Trail Management Plan planning staff. In total, 12,388 people were counted on the trails during the survey period. A total of 1,193 people or 9.2%[6] of trail users were approached over the course of the survey. Of these,

[6] This number should be treated with some caution as the percentage of people surveyed out of overall trail users varied significantly from site to site.

986 people responded by filling out the survey form and 242 were non-respondents, yielding a response rate of 82%. Of the 986 surveys completed, 912 or 92.5% were usable in the final analysis.

Instrument Administration Procedures

The survey instrument was an on-site questionnaire. The survey was administered by two doctoral students from the University of Southern California, together with three undergraduate students in the USC Sustainable Cities Summer Fellows Program and 40 volunteers from the National Park Service. Respondents returned the survey forms to the administering staff upon completion of the questionnaires. A copy of the survey instrument is provided in ***Appendix 1***.

Survey procedures

Trail users were surveyed on site, rather than utilizing a mail-back survey, because experience suggested that response rates of a mail-back survey would be lower than on-site surveys. Surveys were administered at trail heads over the course of two weekends, July 13-14 and July 21-22, 2002 during early (8am-1pm) and late (3pm-7pm) shifts, to capture the times of highest utilization and also to avoid the hottest hours of the day. Wherever possible, nearby trees and / or picnic tables were utilized to protect respondents from the summer heat and to encourage completion of the survey. Although respondents were not paid for taking the survey, they were offered a gift bag from REI™ as an incentive for participation, which included a bottle of water, snack bar and promotional materials.

Potential respondents, selected randomly from the visitor stream, were greeted either as they approached the trails for afternoon users or in the case of early morning visitors, as they returned from being out on the trails. Most surveyors were stationed immediately adjacent to the trail heads, but some surveys were administered along the trails over the course of the two consecutive weekends. For high-volume trails, particularly destination park sites, there were often multiple trail heads, and user groups are sometimes differentiated by the specific trail heads through which they enter the SMMNRA (e.g., dog walkers entering at one portal, mountain bikers at a second portal at the same trail head). This may have biased the sampling to a small extent.

A standardized greeting sheet (refer to ***Appendix 1***) was distributed to all people who were administering the survey. All potential respondents were advised about the nature of the survey and invited to participate. Participation in the survey was strictly voluntary and those trail users who declined to answer the survey were recorded on a non-response sheet (see ***Appendix 1***), together with the time of their visit, their sex, the number of people in their group, whether any children were in the group and in what activity the non-respondent was engaging (e.g. cycling, hiking etc.). Information regarding the total number of visitors to the trail head being surveyed was also entered on a log sheet (refer to ***Appendix 1***). Most respondents completed the survey in approximately 8-9 minutes. Data including the survey time, the survey location and the person administering the survey were recorded on the front page of the questionnaire by the interviewer.

For those trail users who declined to participate in the survey, data was logged solely for non-respondent numbers, non-respondent trail use and basic demographic information, in order to estimate non-respondent bias. Observed characteristics of non-respondents gathered by surveyors included group size, the trail head visited, time of day, presence or absence of children, gender and type of user (e.g. equestrian or jogger). ***Section 4*** presents an assessment of non-response information and comparisons with the respondent sample.

Trail user volume was also estimated by the surveyor or, at busy trail heads, a separate counter. In addition, during the intervening week between the two survey weekends, surveyors noted midweek trail user volumes, demographics and activities.

Data Entry

Returned questionnaires were collected and taken back to USC for data entry. Each question on the questionnaires was assigned a code prior to administering the survey. These codes were used to enter the data into a database. Fields within the database were used to prevent entry of aberrant data, or data that was not consistent with expected responses (i.e. outside of the set range for possible answers). A standard statistical software package was used to calculate frequency distributions and cross-tabulations. Tables were generated based on responses to the questions and responses were summarized. Unanswered questions, errors in responses or in data entry have all been reported as errors.

Statistical and Geographical Analysis

The software package chosen for data entry and analysis was EPI INFO 2000™ Version 1.1.2. This is a statistical package frequently used in epidemiological investigations, public health research, and biomedical database and statistics applications. However, the software is also increasingly used in social science research due to its flexibility and special features. This software was chosen because it enabled data entry into a form that replicated the original questionnaire. The advantage of this is that it enabled those entering the data to follow responses on the questionnaire, thus assisting in minimizing errors. The software also enabled the rapid generation of simple statistics, graphs and tables.

As issues of equity are so pervasive throughout park management today, it was important not only to analyze the demographic makeup of SMMNRA trail users, but also to know about their travel times and geographic origin. Travel models of various sorts are commonly used to determine the catchment of a park or park system such as the SMMNRA. Using the information from a travel model, the user information gathered by the most recent user survey can be augmented to discover under-represented groups within potential catchment areas and also further analysis of non-users (those that live beyond the catchment area).

Multiple questions on the survey instrument were designed to gather the necessary information to perform this sort of travel model analysis, including a question regarding

the user's residential zip code, nearest major intersection, and travel time to the park. Geographic mapping of data was conducted, and a distance decay model was used. (Though beyond the scope of this analysis, more elaborate travel modeling schemas have been developed, including gravity models, intervening opportunity models, and retail trade zone analysis. Using the nearest major intersection question from the survey, absolute distances from the SMMNRA to user residences were estimated and a frequency analysis was performed. With increasing distance, the frequency of visitors falls, ultimately delimiting the radius of the SMMNRA's catchment area. This allowed basic analysis of demographic differences between those falling within the SMMNRA catchment, and those components of the population who have little effective access to trails in the Santa Monica Mountains.